sale of program advertising inserts and rental of passenger headsets.[45/]

B. Section 7 of the Communications Act Requires an Allocation to AAVS Rather than Any of the Other Discrete Services Mentioned Favorably by the Commission

Allocation of 2390-2400 MHz to AAVS not only is in the public interest for the reasons described above, Section 7 of the Communications Act also requires that the agency allocate the band to AAVS rather than any of the other three services mentioned favorably by the Commission. By its terms, Section 7 requires the Commission, in allocating spectrum, to prefer a new service over other types of service:

> "It shall be the policy of the United States to encourage the provision of new . . . services to the public. Any person . . . who opposes a [proposed] new . . . service . . . shall have the burden to demonstrate that such proposal is inconsistent with the public interest."[46/]

AAVS is a new service, but none of the other three services discussed favorably by the Commission -- unlicensed PCS, MDS, and wireless local loop service -- are new. AAVS is new because no other service provides airline passengers with live audio and video

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[45/] Allocating the band to AAVS is preferable to allocating it to Wireless Local Loop Service for another reason as well. In the absence of AAVS, multiple channels of live audio and video programming cannot be provided economically to airline passengers for the foreseeable future as shown in Sec.III.A.2. By contrast, Wireless Local Loop Service can be provided economically without the allocation. SBC, the primary proponent of the Wireless Local Loop Service, already has informed the Commission that the service can be provided economically using the 10 MHz PCS licenses that will be awarded shortly. See note 21, supra. Moreover, the FCC's rules governing 10 MHz PCS licenses allow those licensees to purchase an additional 5 MHz from other licensees anytime after December 31, 1999. See 9 FCC Rcd. 4957, 4984.

[46/] 47 U.S.C. § 157(a) (1988 ed.).

programming. By contrast, unlicensed PCS is not new because the Commission already has allocated 20 megahertz to unlicensed PCS,[47] a service which also is functionally identical to the Part 15 service.[48] MDS likewise is not new since the FCC already has allocated 78 megahertz to MDS.[49] Wireless local loop service similarly is not new since spectrum already has been allocated to that service.[50]

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[47] See n.22, supra.

[48] 47 C.F.R. § 15.1 et seq.

[49] See 47 C.F.R. 21.901.

[50] See 47 C.F.R. § 22.601 (governing the provision of "basic exchange telecommunications radio service" which is defined in Section 22.2 as "public message communication service between a central office and fixed subscribers located in rural areas.") The primary trade association of the local telephone exchange industry, USTA, also has filed a petition proposing rule amendments that would allow use of additional spectrum in the 450 MHz band for wireless local loop service, and this petition is still pending. See RM-8159, filed Nov. 9, 1992. See also Amendment of Parts 2 and 22 of the Commission's Rules to Permit Liberalization of Technology and Auxiliary Service Offerings in the Domestic Public Cellular Radio Telecomm. Service, 3 FCC Rcd. 7033 (1988) (allowing cellular systems to provide wireless local loop service); Letter to A. Thomas Carrocio from Regina M. Keeney, Chief, Wireless Telecomm. Task Force, Nov. 15, 1994 (allowing use of broadband PCS licensees to provide fixed services such as wireless local loop). Moreover, SBC, the primary proponent of wireless local loop service, already has informed the Commission that the service can be provided economically using the 10 MHz PCS licenses that will be awarded shortly. See note 21, supra.

CONCLUSION

The FCC should allocate the 2390-2400 MHz band to a new Airline Audio and Video Service rather than allocate the band either to a new Fixed and Mobile Service or any of the other discrete communications services mentioned by the agency.

Respectfully submitted,

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ATTACHMENT 1

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ENGINEERING STATEMENT IN SUPPORT OF THE REPLY COMMENTS OF IN-FLIGHT PHONE CORPORATION ET DOCKET NO. 94-32

This engineering statement has been prepared on behalf of In-Flight Phone Corporation (In-Flight) in support of its Reply Comments in ET Docket No. 94-32, *Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use.* In-Flight seeks allocation of the 2390-2400 MHz band to a new multichannel audio and video programming service for *en route* airline passengers (AAVS). This band was allocated to the federal government on a primary basis and to the Amateur Radio Service (ARS) on a secondary basis. However, on August 10, 1994, the government gave up its allocation leaving the ARS as the sole user of the band.

It is believed that use of the 2390-2400 MHz (13-centimeter) band for AAVS will not significantly impair existing ARS operations in the band. U.S. amateurs make limited use of the 13-centimeter band, and this fact is reflected by a lack of available commercially manufactured equipment. In contrast, the 3-centimeter (10 GHz) band is far more popular with amateurs for point-to-point terrestrial communications, and commercially manufactured equipment is readily available for this band. In-Flight does not propose operation on 2304.1 MHz, the 13-centimeter band calling frequency, or in the frequency range from 2400.325 MHz to 2400.747 MHz used by Phase 3 amateur satellites. Thus, deployment of the proposed AAVS service is not expected to have a major impact on existing users of the 13-centimeter band.

With respect to future operations in the 2390-2400 MHz band, amateurs are expected to be able to continue secondary use of the band even with AAVS in full operation in the continental United States for two reasons. First, AAVS transmitters will not operate on the entire band at each AAVS transmitter site. For AAVS service, the 2390-2400 MHz band will be broken into equal bandwidth channels, and only one channel will be used at a given AAVS transmitter site. AAVS channel re-use will be cellular-like (n=6), with transmitters located approximately 390 kilometers apart. Thus, in the vicinity of an AAVS transmitter site, amateur operation would be possible in the remaining portion of the 2390-2400 MHz band not being used for AAVS transmission in that locale.

The second reason amateurs are expected to be able to continue secondary use of the 2390-2400 MHz band has to do with the AAVS transmitting antenna configuration. The typical AAVS transmitting antenna[1] will be mounted only as high as necessary to clear local obstructions. For design purposes, a transmitting antenna height of 25 meters above ground level has been assumed. Such a low transmitting antenna height may be used in the proposed AAVS service since the object of the service is to transmit a signal to receivers in airplanes flying at altitudes of between 5,500 meters (18,000 feet) above ground level and 12,000 meters (40,000 feet) above ground level within a 225-kilometer (140-mile) radius of the AAVS transmitter site, not to receivers on the ground.

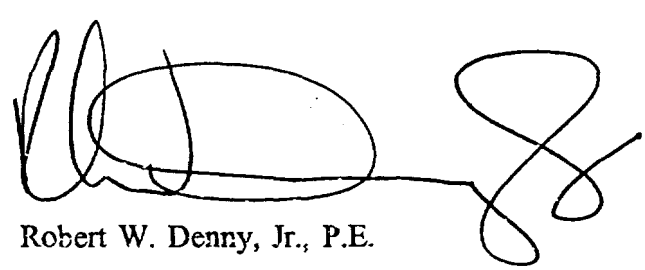
[1] AAVS transmitting antennas will exhibit an omnidirectional horizontal plane radiation characteristic and a vertical plane radiation pattern shape similar to the cosecant$^2\theta$ function.

Little would be gained by increasing the height of an AAVS transmitting antenna. A very large increase in transmitting antenna height would be necessary to have a significant impact on the lower reception altitude at great distances from the transmitter. For example, increasing the AAVS transmitting antenna height from 25 meters AGL to 50 meters AGL lowers the theoretical minimum usable altitude from 2,500 meters AGL to 2,225 meters AGL at a distance of 225 kilometers from an AAVS transmitter site. There is no advantage in bringing the AAVS signal below 3,000 meters (10,000 feet) AGL over a wide area, as this is the in-flight altitude below which entertainment devices typically are stowed on commercial aircraft. Further, at 225 kilometers from the transmitter, the free-space field strength of the AAVS signal is approaching 1 millivolt per meter, a technically comfortable hand-off signal strength that will assure a viewable picture across cell boundaries.

Given the low AAVS antenna height and the line-of-sight nature of propagation at these frequencies, the AAVS signal is not expected to be receivable on the ground beyond the radio horizon. The distance to the radio horizon for a transmitting antenna mounted 25 meters AGL is 20.6 kilometers. While the amateur receiving antennas could be installed at elevations greater than 25 meters AGL thereby increasing the distance to the radio horizon, reception may be precluded only on the portion of the 2390-2400 MHz band used for AAVS transmission in that vicinity. An amateur receiving antenna atop a 1,500-meter (5,000-foot) mountain would have the potential of seeing only one AAVS transmitter, as the AAVS transmitters will be located almost 400 kilometers apart. Thus, a major portion of the 2390-2400 MHz band would remain free for use by amateurs operating from high mountaintop sites.

Just as AAVS is not expected to preclude amateur operations in the 2390-2400 MHz band, under normal conditions amateur operation is not expected to cause a significant amount of interference to reception of AAVS signals on board commercial aircraft. As stated earlier, AAVS transmitting sites are configured to deliver a signal within a service volume from 5,500 meters AGL to 12,000 meters AGL within a 225-kilometer radius of the transmitting site. Amateur operation in the 2390-2400 MHz band is limited, so the probability of interference being caused to AAVS reception is low from the outset. An amateur transmission in this band typically is made using a relatively low power transmitter and a high gain directional antenna with inherently narrow beamwidth. Preliminary evaluation of a prototype AAVS receiver shows that interference to the reception of AAVS signals will be caused when the amateur transmitter is operating on the same frequency as the AAVS signal being received (cochannel) and the ratio of the AAVS signal strength to the amateur signal strength (D/U) is less than 20 dB, or when the amateur transmitter is operating on a frequency adjacent to the AAVS channel being received (adjacent channel) and the D/U is less than 6 dB. Thus, given the limited number of amateur users of the 2390-2400 MHz band and the directional, point-to-point nature of amateur transmissions, the probability of interference to the reception of AAVS signals on board aircraft from amateur operations is believed to be small. The potential for interference from ARS to AAVS will not increase as long as the mode of amateur transmissions in the 2390-2400 MHz band continues to be terrestrial point-to-point using low power transmitters and high gain, narrow beamwidth antennas.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August 29, 1994.



Robert W. Denny, Jr., P.E.

ATTACHMENT 2

The Washington Post

BUSINESS

Gannett Ends Its In-Flight Radio Service

By Mike Mills
Washington Post Staff Writer

Airline passengers who rent headphones to hear live news, weather and sports while in flight are about to be unplugged.

Gannett Co. is shutting down its two-year-old Sky Radio business, which has been the only provider of live audio news and information to commercial airline passengers.

Gannett cited poor advertising sales for the business's demise. But the company also was dealt a blow yesterday when the Securities and Exchange Commission filed a suit alleging that Sky Radio President Thomas Farrell led a group of friends in an insid-

See SKY RADIO, F3, Col 1

Gannett to Terminate Its Sky Radio Business

SKY RADIO, From F1

er trading scheme at a Rochester, N.Y., bank that yielded more than $410,000 in illegal profits.

Gannett spokeswoman Sheila Gibbons said the SEC suit played no role in the decision to end Sky Radio.

The Arlington-based media company, which owns USA Today and a chain of other newspapers nationwide, told the nearly 40 employees of Sky Radio on Tuesday that they would soon be out of jobs. The service will end at midnight on Dec. 23, Gibbons said.

Sky Radio was launched in 1992 as the first live news, weather and sports service for airlines. The service, delivered by satellites to 458 United, Delta and Northwest planes, was intended to be solely supported by advertising. Airlines got the revenue from headphone rentals.

"Customers enjoyed it quite a bit," said Joe Hopkins, a United spokesman. "There is a market for the service."

But advertisers remained uninspired. "Sufficient advertising revenue didn't materialize in the years we were doing Sky Radio, even though we had several approaches in our sales efforts," Gibbons said.

Newer technology also was eclipsing Sky Radio. Even before it began, a competitor called In-Flight Phone Corp. was planning a more ambitious alternative. That company hopes to get federal approval next year to unveil a 12-channel radio service that would include near-CD quality music as well as news, weather and sports produced by ABC News.

"The problem with Sky Radio was it was a limited concept," said Bill Gordon, In-Flight's vice president of regulatory affairs. Still, he added, "it was a good concept and their programming was pretty good."